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NEWS	12	FEB 02	GENBANK enhanced with SET PLURALS and SET SPELLING
NEWS	13	FEB 06	Patent sequence location (PSL) data added to USGENE
NEWS	14	FEB 10	COMPENDEX reloaded and enhanced
NEWS	15	FEB 11	WTEXTILES reloaded and enhanced
NEWS	16	FEB 19	New patent-examiner citations in 300,000 CA/CAPLUS patent records provide insights into related prior art
NEWS	17	FEB 19	Increase the precision of your patent queries -- use terms from the IPC Thesaurus, Version 2009.01
NEWS	18	FEB 23	Several formats for image display and print options discontinued in USPATFULL and USPAT2
NEWS	19	FEB 23	MEDLINE now offers more precise author group fields and 2009 MeSH terms
NEWS	20	FEB 23	TOXCENTER updates mirror those of MEDLINE - more precise author group fields and 2009 MeSH terms
NEWS	21	FEB 23	Three million new patent records blast AEROSPACE into STN patent clusters
NEWS	22	FEB 25	USGENE enhanced with patent family and legal status display data from INPADOCDB
NEWS EXPRESS	JUNE 27 08		CURRENT WINDOWS VERSION IS V8.3, AND CURRENT DISCOVER FILE IS DATED 23 JUNE 2008.
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DICTIONARY FILE UPDATES: 3 MAR 2009 HIGHEST RN 1115115-78-0

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```
=> s 3,3'-dihydroxy-4,4'-diaminobiphenyl
    356969 3,3
    448832 'DIHYDROXY'
    158006 '4,4'
    471 DIAMINOBIIPHENYL
L1    0 3,3'-DIHYDROXY-4,4'-DIAMINOBIIPHENYL
      (3,3(W)'DIHYDROXY'(W)'4,4'(W)DIAMINOBIIPHENYL)
```

```
=> s dihydroxy (w) diaminobiphenyl
    448832 DIHYDROXY
    471 DIAMINOBIIPHENYL
L2    0 DIHYDROXY (W) DIAMINOBIIPHENYL
```

```
=> s 2373-98-0
L3    1 2373-98-0
      (2373-98-0/RN)
```

=> d cn

L3 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2009 ACS on STN
CN [1,1'-Biphenyl]-3,3'-diol, 4,4'-diamino- (CA INDEX NAME)

OTHER CA INDEX NAMES:
CN 3,3'-Biphenyldiol, 4,4'-diamino- (8CI)
CN m,m'-Biphenol, 6,6'-diamino- (7CI)
OTHER NAMES:
CN 3,3'-Dihydroxy-4,4'-diaminobiphenyl
CN 3,3'-Dihydroxybenzidine
CN HAB (diol)
CN [1,1'-Biphenyl]-4,4'-diamine, 3,3'-dihydroxy-

=> file caplus		
COST IN U.S. DOLLARS	SINCE FILE	TOTAL
	ENTRY	SESSION
FULL ESTIMATED COST	39.43	39.65

FILE 'CAPLUS' ENTERED AT 15:35:17 ON 04 MAR 2009
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FILE COVERS 1907 - 4 Mar 2009 VOL 150 ISS 10
FILE LAST UPDATED: 3 Mar 2009 (20090303/ED)

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<http://www.cas.org/legal/infopolicy.html>

This file contains CAS Registry Numbers for easy and accurate substance identification.

```
=> s l3
L4      202 L3

=> s l3 and electrolyte
      202 L3
      284487 ELECTROLYTE
      146748 ELECTROLYTES
      340377 ELECTROLYTE
          (ELECTROLYTE OR ELECTROLYTES)
L5      1 L3 AND ELECTROLYTE

=> d l5

L5  ANSWER 1 OF 1  CAPLUS  COPYRIGHT 2009 ACS on STN
AN  2008:1127014  CAPLUS
DN  149:359510
TI  Hydrocarbon-based polymer electrolytes showing high ionic
    conductivity and acid resistance, their polymer electrolyte
```

membranes, membrane-electrode assemblies (MEA), fuel cells, fuel cell power source systems, and electric appliances
 IN Koyama, Toru; Morishima, Makoto
 PA Hitachi Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 60pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	----	-----	-----	-----
PI	JP 2008218327	A	20080918	JP 2007-57390	20070307
PRAI	JP 2007-57390		20070307		

=> s 13 and fuel cell
 202 L3
 460756 FUEL
 180364 FUELS
 516197 FUEL
 (FUEL OR FUELS)
 2536400 CELL
 2178095 CELLS
 3306546 CELL
 (CELL OR CELLS)
 94596 FUEL CELL
 (FUEL(W)CELL)
 L6 4 L3 AND FUEL CELL

=> d 16 ti pn

L6 ANSWER 1 OF 4 CAPLUS COPYRIGHT 2009 ACS on STN
 TI Structure-property relationships for a series of polyimide copolymers with sulfonated pendant groups

=> d 16 ti pn 1-4

L6 ANSWER 1 OF 4 CAPLUS COPYRIGHT 2009 ACS on STN
 TI Structure-property relationships for a series of polyimide copolymers with sulfonated pendant groups

L6 ANSWER 2 OF 4 CAPLUS COPYRIGHT 2009 ACS on STN
 TI Hydrocarbon-based polymer electrolytes showing high ionic conductivity and acid resistance, their polymer electrolyte membranes, membrane-electrode assemblies (MEA), fuel cells, fuel cell power source systems, and electric appliances
 PATENT NO. KIND DATE

 PI JP 2008218327 A 20080918

L6 ANSWER 3 OF 4 CAPLUS COPYRIGHT 2009 ACS on STN
 TI A facile approach for the preparation of cross-linked sulfonated polyimide membranes for fuel cell application

L6 ANSWER 4 OF 4 CAPLUS COPYRIGHT 2009 ACS on STN
 TI Synthesis and properties of novel sulfonated polyimides for fuel cell application

=> d 4 all

L6 ANSWER 4 OF 4 CAPLUS COPYRIGHT 2009 ACS on STN

AN 2004:1042250 CAPLUS

DN 143:173439

ED Entered STN: 06 Dec 2004

TI Synthesis and properties of novel sulfonated polyimides for fuel cell application

AU Fang, Jianhua; Guo, Xiaoxia; Litt, Morton

CS School of Chemistry and Chemical Technology, Shanghai Jiao Tong University, Shanghai, 200240, Peop. Rep. China

SO Transactions of the Materials Research Society of Japan (2004), 29(6), 2541-2546

CODEN: TMRJE3; ISSN: 1382-3469

PB Materials Research Society of Japan

DT Journal

LA English

CC 35-5 (Chemistry of Synthetic High Polymers)

AB A new sulfonated diamine monomer, 3,3'-bis(4-sulfophenoxy)benzidine (BSPOB), was synthesized and a series of sulfonated (co)polyimides were prepared from 1,4,5,8-naphthalenetetracarboxylic dianhydride (NTDA), BSPOB and common nonsulfonated diamine monomers. The solubility behavior, thermal stability, mech. strength, water uptake, proton conductivity, water stability

and methanol permeability of the resulting sulfonated (co)polyimides were investigated. The copolyimide prepared from NTDA, BSPOB, and 4,4'-bis(3-aminophenoxy)diphenyl sulfone (mBAPPS), with a diamine molar ratio of 9:1 (BSPOB to mBAPPS) showed unusually high water stability as well as high proton conductivity, i.e., it did not lose mech. strength even

after being soaked in deionized water at 100° for more than 2000 h, while its proton conductivity was 0.18 S/cm in liquid water at 25° which is higher than that of Nafion 117.

ST sulfonated polyimide fuel cell membrane;
bissulfophenoxy benzidine polymn naphthalenetetracarboxylic dianhydride

IT Viscosity
(inherent; synthesis and properties of sulfonated polyimides for fuel cell membranes)

IT Polymerization
(of bis(sulfophenoxy)benzidine with naphthalenetetracarboxylic dianhydride and diamines)

IT Polyimides, preparation
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(polyether-, comparison polymer; synthesis and properties of sulfonated polyimides for fuel cell membranes)

IT Polyethers, preparation
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(polyimide-, comparison polymer; synthesis and properties of sulfonated polyimides for fuel cell membranes)

IT Ionic conductivity
(proton; synthesis and properties of sulfonated polyimides for fuel cell membranes)

IT Elongation, mechanical
Fuel cell separators
Membranes, nonbiological
Solubility
Tensile strength
Thermal stability

(synthesis and properties of sulfonated polyimides for fuel cell membranes)

IT Polyimides, preparation
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(synthesis and properties of sulfonated polyimides for fuel cell membranes)

- IT Permeability
(to methanol; of sulfonated polyimides for fuel cell membranes)
- IT 66796-30-3, Nafion 117
RL: PRP (Properties)
(comparison polymer membrane; synthesis and properties of sulfonated polyimides for fuel cell membranes)
- IT 196309-83-8, 2,2'-Benzidinedisulfonic acid-4,4'-diaminodiphenyl ether-1,4,5,8-naphthalenetetracarboxylic acid copolymer 481001-33-6 500295-68-1, 4,4'-Bis(4-aminophenoxy)biphenyl-3,3'-disulfonic acid-1,4,5,8-naphthalenetetracarboxylic dianhydride copolymer 500295-69-2 648900-40-7, 3-(2',4'-Diaminophenoxy)propanesulfonic acid-1,4,5,8-naphthalenetetracarboxylic acid dianhydride copolymer 648900-41-8, 3,3'-Bis(3-sulfopropoxy)benzidine-1,4,5,8-naphthalenetetracarboxylic acid dianhydride copolymer 648900-42-9, 2,2'-Bis(3-sulfopropoxy)benzidine-1,4,5,8-naphthalenetetracarboxylic acid dianhydride copolymer 696615-46-0 696615-88-0 860615-84-5, 4,4'-Bis(4-aminophenoxy)biphenyl-3,3'-disulfonic acid-4,4'-diaminodiphenyl ether-1,4,5,8-naphthalenetetracarboxylic acid dianhydride copolymer 861106-02-7
RL: PRP (Properties)
(comparison polymer; synthesis and properties of sulfonated polyimides for fuel cell membranes)
- IT 2373-98-0, 3,3'-Dihydroxybenzidine
RL: RCT (Reactant); RACT (Reactant or reagent)
(in preparation of bis(sulfophenoxy)benzidine monomer for synthesis of polyimides for fuel cell membranes)
- IT 651-07-0P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(in preparation of bis(sulfophenoxy)benzidine monomer for synthesis of polyimides for fuel cell membranes)
- IT 860615-75-4P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(monomer; for synthesis of polyimides for fuel cell membranes)
- IT 67-56-1, Methanol, processes
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)
(permeability to; of sulfonated polyimides for fuel cell membranes)
- IT 462-06-6, Fluorobenzene
RL: RCT (Reactant); RACT (Reactant or reagent)
(sulfonation of; in preparation of bis(sulfophenoxy)benzidine monomer for synthesis of polyimides for fuel cell membranes)
- IT 860615-77-6P 860615-79-8P 860615-81-2P 860615-83-4P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(synthesis and properties of sulfonated polyimides for fuel cell membranes)

RE.CNT 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Bailey, C; Polymer 1987, V28, P1009
- (2) Fang, J; Macromolecules 2002, V35, P9022 CAPLUS
- (3) Faure, S; FR 9605707 1996
- (4) Genies, C; Polymer 2001, V42, P5097 CAPLUS
- (5) Guo, X; Macromolecules 2002, V35, P6707 CAPLUS
- (6) Kerres, J; J Polym Sci:Part A: Polym Chem 1996, V34, P2421 CAPLUS
- (7) Kim, H; Polym Prepr (Am Chem Soc, Div Polym Chem) 2001, V42(2), P486 CAPLUS
- (8) Miyatake, K; Chem Mater 1999, V11, P1171 CAPLUS
- (9) Okamoto, K; J Photopolym Sci Technol 2003, V16, P247 CAPLUS
- (10) Rikukawa, M; Prog Polym Sci 2000, V25, P1463 CAPLUS

(11) Savadogo, O; J New Mat Electrochem Systems 1998, V1, P47 CAPLUS
 (12) Schmeller, A; EP 0574791 A2 1993 CAPLUS
 (13) Wang, F; J Membr Sci 2002, V197, P231 CAPLUS
 (14) Watari, T; J Membr Sci in press
 (15) Yin, Y; Chem Lett 2003, V32, P328 CAPLUS
 (16) Yin, Y; Polymer 2003, V44, P4509 CAPLUS
 (17) Zhang, Y; Polym Prepr (Am Chem Soc, Div Polym Chem) 1999, V40(2), P480 CAPLUS

=>

=> s l3 and membrane

202 L3

830266 MEMBRANE

353294 MEMBRANES

926404 MEMBRANE

(MEMBRANE OR MEMBRANES)

L7 5 L3 AND MEMBRANE

=> d l7 not l6

L6 IS NOT VALID HERE

For an explanation, enter "HELP DISPLAY".

=> s l7 not l6

L8 1 L7 NOT L6

=> d l8 ti pn

L8 ANSWER 1 OF 1 CAPLUS COPYRIGHT 2009 ACS on STN

TI Preparation of 6FDA-based polyimide membranes for CO2 gas separation

=> d l8 all

L8 ANSWER 1 OF 1 CAPLUS COPYRIGHT 2009 ACS on STN

AN 2005:505349 CAPLUS

DN 143:409710

ED Entered STN: 14 Jun 2005

TI Preparation of 6FDA-based polyimide membranes for CO2 gas separation

AU Kim, Kwang-Je; So, Won-Wook; Moon, Sang-Jin

CS Advanced Chemical Technology Division, Korea Research Institute of Chemical Technology, Yuseong, Daejeon, 305-600, S. Korea

SO Studies in Surface Science and Catalysis (2004), 153(Carbon Dioxide Utilization for Global Sustainability), 531-534

CODEN: SSCTDM; ISSN: 0167-2991

PB Elsevier B.V.

DT Journal

LA English

CC 59-2 (Air Pollution and Industrial Hygiene)

Section cross-reference(s): 38

AB Polyimides for CO2 membrane separation were prepared from the thermal imidization reaction of 2,2-bis(3,4-dicarboxyphenyl)hexafluoropropane dianhydride(6FDA) with different diamines. The solubility of 6FDA-based polyimides to organic solvents played an important role in preparation of a

dense

membrane or a composite one. The composite membranes were available for 6FDA-based polyimides to be soluble in 2-methoxyethanol or/and alcs. including methanol, ethanol, and butanol. CO2 separation performances for 6FDA-based dense membranes were investigated

and compared with those for the composite membranes. The CO₂ permeability and CO₂/N₂ selectivity of 6FDA-TrMPD polyimide dense membrane with different mol. wts. were measured.

ST carbon dioxide gas sepn 6FDA based polyimide membrane prepn;
global warming air pollution carbon dioxide gas sepn 6FDA

IT Permeability
(gas; preparation of 2,2-bis(3,4-dicarboxyphenyl)hexafluoropropane dianhydride based polyimide membranes for carbon dioxide gas separation)

IT Climate
(greenhouse effect; preparation of 2,2-bis(3,4-dicarboxyphenyl)hexafluoropropane dianhydride based polyimide membranes for carbon dioxide gas separation)

IT Polyimides, reactions
RL: CPS (Chemical process); OCU (Occurrence, unclassified); PEP (Physical, engineering or chemical process); POL (Pollutant); PRP (Properties); RCT (Reactant); REM (Removal or disposal); TEM (Technical or engineered material use); OCCU (Occurrence); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(membrane; preparation of 2,2-bis(3,4-dicarboxyphenyl)hexafluoropropane dianhydride based polyimide membranes for carbon dioxide gas separation)

IT Separation
(of carbon dioxide gas; preparation of 2,2-bis(3,4-dicarboxyphenyl)hexafluoropropane dianhydride based polyimide membranes for carbon dioxide gas separation)

IT Membranes, nonbiological
(permselective; preparation of 2,2-bis(3,4-dicarboxyphenyl)hexafluoropropane dianhydride based polyimide membranes for carbon dioxide gas separation)

IT Air pollution
Diffusion
Functional groups
Permeation separation
Standards, legal and permissive
(preparation of 2,2-bis(3,4-dicarboxyphenyl)hexafluoropropane dianhydride based polyimide membranes for carbon dioxide gas separation)

IT Imidation
(thermal; preparation of 2,2-bis(3,4-dicarboxyphenyl)hexafluoropropane dianhydride based polyimide membranes for carbon dioxide gas separation)

IT 1107-00-2P, 2,2-Bis(3,4-dicarboxyphenyl)hexafluoropropane dianhydride
RL: CPS (Chemical process); NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); RCT (Reactant); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(preparation of 2,2-bis(3,4-dicarboxyphenyl)hexafluoropropane dianhydride based polyimide membranes for carbon dioxide gas separation)

IT 74-82-8, Methane, reactions 124-38-9, Carbon dioxide, reactions 7727-37-9, Nitrogen, reactions
RL: CPS (Chemical process); OCU (Occurrence, unclassified); PEP (Physical, engineering or chemical process); POL (Pollutant); PRP (Properties); RCT (Reactant); REM (Removal or disposal); OCCU (Occurrence); PROC (Process); RACT (Reactant or reagent)
(preparation of 2,2-bis(3,4-dicarboxyphenyl)hexafluoropropane dianhydride based polyimide membranes for carbon dioxide gas separation)

IT 137-09-7, 2,4-Diaminophenol dihydrochloride 535-87-5, 3,5-Diaminobenzoic acid 2373-98-0, 3,3'-Dihydroxy-4,4'-diaminobiphenyl 3102-70-3, 2,4,6-Trimethyl-1,3-phenylenediamine 83558-87-6, 2,2-Bis(3-amino-4-hydroxyphenyl)hexafluoropropane
RL: CPS (Chemical process); OCU (Occurrence, unclassified); PEP (Physical,

engineering or chemical process); POL (Pollutant); PRP (Properties); RCT (Reactant); REM (Removal or disposal); TEM (Technical or engineered material use); OCCU (Occurrence); PROC (Process); RACT (Reactant or reagent); USES (Uses)

IT (preparation of 2,2-bis(3,4-dicarboxyphenyl)hexafluoropropane dianhydride based polyimide membranes for carbon dioxide gas separation)
64-17-5, Ethanol, uses 67-56-1, Methanol, uses 109-86-4,
2-Methoxyethanol 110-80-5, 2-Ethoxyethanol 111-76-2, 2-Butoxy ethanol
35296-72-1, Butanol

RL: NUU (Other use, unclassified); USES (Uses)

(preparation of 2,2-bis(3,4-dicarboxyphenyl)hexafluoropropane dianhydride based polyimide membranes for carbon dioxide gas separation)

RE.CNT 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

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- (5) Sea, B; J Ind Eng Chem 2002, V8, P290 CAPLUS
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- (7) Tanaka, K; J Polym Sci, Polym Phys 1992, V30, P907 CAPLUS

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